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APPLICATION NO.	I	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,346	10/074,346 02/12/2002		Igor Gurevich	5691	
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COOLEY		,	MACCHIAROLO, PETER J		
3000 EL CA 5 PALO AL			ART UNIT	PAPER NUMBER	
PALO ALT	PALO ALTO, CA 94306				
				DATE MAILED: 09/01/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)	
Office Action Commence	10/074,346	GUREVICH ET AL.	
Office Action Summary	Examiner	Art Unit	
	Peter J Macchiarolo	2879	
The MAILING DATE of this communication Period for Reply	n appears on the cover sheet with	the correspondence address	
A SHORTENED STATUTORY PERIOD FOR R THE MAILING DATE OF THIS COMMUNICATION - Extensions of time may be available under the provisions of 37 Cl after SIX (6) MONTHS from the mailing date of this communication - If the period for reply specified above is less than thirty (30) days, - If NO period for reply is specified above, the maximum statutory p - Failure to reply within the set or extended period for reply will, by Any reply received by the Office later than three months after the earned patent term adjustment. See 37 CFR 1.704(b).	ON. FR 1.136(a). In no event, however, may a report. a reply within the statutory minimum of thirty (seriod will apply and will expire SIX (6) MONTH statute, cause the application to become ABAI	oly be timely filed (30) days will be considered timely. HS from the mailing date of this communication. NDONED (35 U.S.C. § 133).	
Status			
1) Responsive to communication(s) filed on	<u>01 July 2004</u> .		
2a)⊠ This action is FINAL . 2b)□	This action is non-final.		
3) Since this application is in condition for all closed in accordance with the practice under the condition of the condit	·	• •	
Disposition of Claims			
 4)	hdrawn from consideration.		
Application Papers			
9)☐ The specification is objected to by the Exa	miner.		
10)⊠ The drawing(s) filed on is/are: a)□	accepted or b) objected to by	the Examiner.	
Applicant may not request that any objection to		• •	
Replacement drawing sheet(s) including the control of the oath or declaration is objected to by the	•	• •	
Priority under 35 U.S.C. § 119			
12) Acknowledgment is made of a claim for for a) All b) Some * c) None of: 1. Certified copies of the priority docur 2. Certified copies of the priority docur 3. Copies of the certified copies of the application from the International But * See the attached detailed Office action for a	ments have been received. ments have been received in App priority documents have been re ureau (PCT Rule 17.2(a)).	plication No eceived in this National Stage	
Attachment(s)			
1) X Notice of References Cited (PTO-892)		mmary (PTO-413)	
 Notice of Draftsperson's Patent Drawing Review (PTO-94t Information Disclosure Statement(s) (PTO-1449 or PTO/S Paper No(s)/Mail Date 		Mail Date ormal Patent Application (PTO-152) 	

DETAILED ACTION

Page 2

Response to Amendment

1. The reply filed on 06/14/2004 consists of changes to the claims, and further, the reply consists of remarks related to the prior rejection of claims in the previous Office Action. The above have been entered and considered. However, pending claims 1, 8-17, 19, 20, 25-43 are not allowable as explained below.

Drawings

- 2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second collimating lens unit having a height above a surface of the housing determined by a height of the transparent spacer as recited in claim 35, the first and second recesses of the housing disposed parallel to the longitudinal optical axis as recited in claim 40, and the optical fiber connection unit being disposed at one end of the slot as recited in claim 41 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
- 3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the

Art Unit: 2879

drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

- 4. Claim 16 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 16 is the same as claim 11.
- 5. Claim 35 is objected to for reciting, "said transparent spacer." There is not proper antecedent basis for this term.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 40 and 41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

Art Unit: 2879

7. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The first and second recesses being disposed parallel to the longitudinal optical axis in a longitudinal slot has not been disclosed in the original claims, specification, or drawings.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
- 8. Claims 36 and 42 are rejected under 35 U.S.C. 102(e) as being anticipated by Althaus (USPN 6722793; "Althaus").
- 9. Regarding claim 36, Althaus shows in the figure, an optical module comprising a housing (1) having a longitudinal optical axis; an optical signal generating unit (4) located in a first portion of the housing generating an outgoing beam having a first wavelength; an optical signal receiving unit (5) located in a second portion of the housing adapted to receive signals at a second wavelength; an optical fiber connection unit (2, 8) attached to the housing and having an optical fiber (7), a first mirror (3) disposed proximate the optical signal generating unit directing the outgoing beam from a beam emission direction to a direction parallel to the longitudinal optical axis towards the optical fiber connection unit; and a second mirror (6) directing an

incoming optical beam from the optical fiber connection unit to a beam receiving direction of the optical signal receiving unit; wherein the first mirror is reflective at the first wavelength, the second mirror is reflective at the second wavelength, with a mirror closest to the optical fiber connection unit being reflective for one of the first and second wavelengths and transparent for the other of the first and second wavelengths.

- The Examiner notes that the preamble recites that the optical module is used for a high-speed bidirectional transceiver. This is an intended use type preamble, since it merely recites the intended use of an optical module. Where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone, the preamble is generally not accorded any patentable weight. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). In this case, the preamble has been considered, however is not patentable over Althaus since the optical module can be used as a high-speed bidirectional transceiver.
- Regarding claim 42, Althaus shows in the figure an optical module having a first optical path and a second optical path for transmitting optical beams in mutually opposite directions comprising: a housing (1); an optical signal generating unit (4) having a beam emission direction, the optical signal generating unit located in the housing and generating first optical beam having a first wavelength; an optical signal receiving unit (5) having a beam receiving direction, the optical signal receiving unit located in the housing and receiving a second optical beam having a second wavelength; an optical fiber connection unit (2, 8) attached to the housing

and having an optical fiber (7) for transmitting the first optical beam and the second optical beam; a first mirror (3); and a second mirror (6).

12. The Examiner notes that the limitations, "for reflecting the first beam for changing direction thereof from the beam emission direction to a direction coaxial with the optical fiber," and "for reflecting the second beam for changing direction thereof from the direction coaxial with the optical fiber to the beam receiving direction," are intended use type limitations. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 13. Claim 1, 8, 9, 12-14, 17, 19, 20, 25-35, 37-41, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Althaus in view of Keil et al (USPN 4767171; "Keil").
- 14. In regards to claim 1, Althaus shows in the figure, an optical module comprising a housing (1) an optical signal generating unit including a laser diode (4) having a beam emission

Application/Control Number: 10/074,346

Page 7

Art Unit: 2879

direction, the optical signal generating unit located in the housing and generating a first optical beam; an optical signal receiving unit including an optical detector (5) having a beam receiving direction, the optical signal receiving unit located in the housing and receiving a second optical beam; an optical fiber connection unit (8) attached to the housing and having an optical fiber (7) for transmitting the first optical beam and the second optical beam; a first mirror (3), a second mirror (6).

- 15. Althaus shows that lenses are positioned in a first and second optical path, but does not mention whether the lenses are collimating or not, and is therefore silent to using a first and second collimating lens, wherein the first optical beam is collimated beam on a part of the first optical path from the first mirror to the optical fiber connection unit whereas the second optical beam is collimated beam on a part of the second optical path from the optical fiber connection unit to the second mirror.
- 16. However, using collimator lenses in this configuration is obvious. It is known to one of ordinary skill in the art that collimator lenses reduce the amount of scattered light in a housing and increase coupling efficiency and prevents problems associated with maladjustment, as evidenced by Keil. Further, the placement of a first and second collimator lens as recited by Applicant also obvious, since one of ordinary skill will understand the lenses will have to be placed somewhere near the beginning or end of the optical path within the housing to achieve the benefits of a collimated light beam.
- 17. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the device of Althaus

¹ Keil, col. 1, 1l. 33-35.

Page 8

with a first collimating lenses placed on the first optical path between the optical signal generating unit and the first mirror and a second collimating lens placed in the optical fiber connection unit aligned to the optical fiber, since this configuration will increase coupling efficiency.

- 18. The Examiner notes that the preamble is an intended use type preamble which has been discussed above.
- 19. Regarding claim 8, Althaus further shows in the figure, the housing has a first recess (1c) for accommodating said laser diode and a second recess (1d) parallel to said first laser diode accommodating said optical detector, positions of said first recess and of said second recess being selected from a first position which is closer to said optical fiber connection unit and a second position which is further from said optical fiber connection unit.
- 20. Regarding claims 9, 13, 14, Althaus further shows in the figure, said laser diode being located in said first position, and said optical detector being located in said second position, and the mirror is selective for reflecting only the second optical beam.
- 21. Although Althaus shows the optical receiver and laser diode are in positions contrary to Applicant's recited positions, it would have been obvious to rearrange the optical receiver and laser diode, since this is a mere rearrangement of parts and a matter of design choice. In re Japikse, 86 USPQ 70. Further, the corresponding mirrors would the have Applicant's recited arrangement to enable proper operation. One would be motivated to construct the optical

module with such a configuration for a variety of reasons, including space requirements, and operating methods with sensitive requirements.

- 22. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct Althaus's optical module with the laser diode being located in the second position and the optical detector being located in the first position.
- 23. Regarding claim 12, Althaus is silent to using an optical filter and a lens unit for coupling light into the optical detector.
- 24. However, Kiel shows this configuration provides a structure for an optical module which can be constructed without problems with maladjustment.²
- 25. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct Althaus' optical module with the optical filter configuration of Kiel to provide an optical module which can be constructed without problems with maladjustment.
- 26. Regarding claims 17, 19, 20, 37-39, and 43 Althaus is silent to specifics of the fiber optic cable attachment location.
- 27. However, Kiel shows in figure 1, the fiber optic module comprises, the optical fiber connection unit being a pre-assembled unit comprising the second collimating lens unit (KL2), an optical fiber holding means (FA1), a spacer (L) between the second collimating lens unit and

² Keil, col. 1, 11. 33-35.

the optical fiber holding means, and an optical fiber (F), the spacer being sandwiched between the second collimating lens unit and the fiber holding means, the fiber having a core and being in butt connection with the spacer, the second collimating lens unit being collimating for the second optical beam and being focusing for the first optical beam for focusing the first optical beam onto the core, and this configuration prevents problems associated with maladjustment.³

- 28. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the optical module of Althaus with the configuration of Kiel.
- 29. In regards to claim 25, Althaus shows in the figure, a housing (1) having a longitudinal optical axis; an optical signal generating unit (4) located in a first portion of the housing, the optical signal generating unit including a laser diode and; an optical signal receiving unit (5) including an optical detector, the optical signal receiving unit located in a second portion of the housing; a pre-assembled optical fiber connection unit (2) attached to the housing, a first mirror (3) directing the outgoing beam along the longitudinal optical axis towards the optical fiber connection unit; and a second mirror (6) directing the incoming optical beam from the optical fiber connection unit towards the optical signal receiving unit.
- 30. Althous shows two lenses, but is silent to them being a first and second collimating lens.
- 31. However, a first collimating lens unit adapted to generate a collimated outgoing beam from an emission of the laser diode and a second collimating lens unit in the pre-assembled optical fiber connection unit being held in optical alignment with an optical fiber to couple

³ Keil, col. 1, ll. 33-35.

Page 11

Art Unit: 2879

incoming and outgoing light between the optical fiber and the optical module is an obvious configuration. It is known to one of ordinary skill in the art that collimator lenses reduce the amount of scattered light in a housing and increase coupling efficiency and prevents problems associated with maladjustment, as evidenced by Keil.⁴ Further, the placement of a first and second collimator lens as recited by Applicant also obvious, since one of ordinary skill will understand the lenses will have to be placed in the housing near the beginning or end of the incoming and outgoing optical paths to achieve the benefits of a collimated light beam.

- 32. The motivation and reason for combining is the same as for claim 1 above.
- 33. The Examiner notes that this configuration will have the effect of the second collimating lens unit collimating incoming light received from the optical fiber thereby generating a collimated incoming beam directed along the longitudinal optical axis away from the optical fiber connection unit, and the first collimating lens unit and the second collimating lens unit will collimate the incoming beam and the outgoing beam which will allow for independent fine optical alignment of the laser diode, the optical detector, and the optical fiber connection unit.
- 34. Regarding claim 26, Althous is silent to a collimating lens.
- 35. However, Keil wherein said collimated incoming beam has an essentially constant cross-sectional shape in a region between said optical connection unit and said second mirror and said collimated outgoing mirror has a constant cross-sectional shape in a region between said first

⁴ Keil, col. 1, 1l. 33-35.

Art Unit: 2879

mirror and said optical correction unit, and this prevents problems associated with maladiustment, as evidenced by Keil.⁵

36. The motivation and reason for combining is the same as for claim 25 above.

37. Regarding claims 27-30, both Althaus and Keil are silent to the collimating lens units

being adapted to generate a diffraction limited beam, or the first collimating lens unit being a

collimating anamorphic optical objective including at least one circular aspherical lens.

38. However, this is an obvious configuration since one of ordinary skill in the art will realize

this will allow for a smaller module which properly collimates the optical beams. Furthermore,

it has been held to be within the general skill of a worker in the art to select a known material on

the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin,

125 USPQ 416.

39. Therefore, in view of the above discussion, it would have been obvious to one having

ordinary skill in the art at the time the invention was made to construct the optical module of

Althous and Keil with the collimating lens units being adapted to generate a diffraction limited

beam with the first collimating lens unit being a collimating anamorphic optical objective

including at least one circular aspherical lens to allow for a smaller module which properly

collimates the optical beams.

40. Regarding claim 31, Althaus shows in the figure, the first recess is located along a distal

portion of said housing with respect to said optical fiber connection unit and said second recess is

⁵ Keil, col. 1, ll. 33-35.

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located proximate to said optical fiber connection unit such that said outgoing beam passes through said second mirror, said second mirror being transparent for said outgoing beam.

- 41. Regarding claim 32, Althaus shows in the figure, the second recess is located along a distal portion of said housing with respect to said optical fiber connection unit and said first recess is located proximate to said optical fiber connection unit such that said incoming beam passes through said first mirror, said first mirror being transparent for said incoming beam.
- 42. Regarding claims 33 and 34, Althaus shows in the figure, the optical fiber connection unit includes a ferrule (2) and an optically transparent spacer (8), wherein an optical fiber is held in a butt connection with the transparent spacer.
- 43. Althous is silent to the spacer being sandwiched between the second collimating lens and an optical fiber holder.
- 44. However, this is an obvious configuration, since this requires a mere rearrangement of parts and a matter of design choice. *In re Japikse*, 86 USPQ 70. Furthermore, Keil evidences that many different acceptable configurations of an optical transceiver are known and can be implemented, including a spacer being sandwiched between the second collimating lens and an optical fiber holder, which will convert incoming light into a collimated incoming beam. One would be motivated to construct an optical module with such a configuration for a variety of reasons, including space requirements, and manufacturing steps with sensitive parameters.

- 45. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct an optical module with the spacer being sandwiched between the second collimating lens and an optical fiber holder.
- 46. Regarding claim 35, Althaus is silent to a second collimating lens.
- 47. However, Keil shows in figure 2, the second collimating lens unit has a height above a surface of the housing (TK) determined by a height of the transparent spacer.
- 48. The motivation and reason for combining is the same as for claim 17 above.
- 49. Regarding claims 40 and 41, Althaus shows the optical signal generating unit is disposed in a first recess and the optical signal receiving unit is disposed in a second recess of the housing, and the optical fiber connection unit is disposed at one end of the housing parallel to the longitudinal optical axis.
- 50. However, Althaus and Keil are silent to the first and second recess being disposed parallel to the longitudinal optical axis, and the optical fiber connection unit is disposed at one end of the slot.
- However, one of working skill using optical module technology will be able to suitably rearranging the first and second recesses to be parallel with the longitudinal axis, and is a matter of obvious design choice. *In re Japikse*, 86 USPQ 70. One would arrive at these modifications depending on space requirements and platform requirements.
- 52. Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the optical module of

Art Unit: 2879

Althaus with the first and second recesses being parallel to the axis and the optical fiber connection unit is disposed at one end of the slot.

53. Claims 10, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Althaus in view of Keil in view of Feldman et al (USPN 6128134; "Feldman").

- 54. Regarding claims 10, 11, and 15 both Althaus and Keil are both silent to the claimed collimating lenses.
- 55. However, an optical lens unit being a collimating optical objective composed of at least one circular aspherical lens, or the optical lens unit being a collimating anamorphic objective composed of at least two mutually perpendicular cylindrical lenses, are both known to provide specific advantages, i.e. optical steering, etc. as evidenced by Feldman.
- Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the optical module of Althaus, including the optical lens configurations discussed above, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Response to Arguments

57. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Application/Control Number: 10/074,346

Art Unit: 2879

Conclusion

Page 16

- Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a).

 Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
- 59. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.
- 60. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Macchiarolo whose telephone number is (571) 272-2375. The examiner can normally be reached on 8:30 5:00, M-F.
- 61. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571) 272-2475. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
- 62. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PM

Joseph Williams Primary Examiner AU 2879

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